

Final Report
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South Carolina Department of Natural Resources
December 1, 2018 – December 31, 2021

Multistate Sandhills/Upland Longleaf Ecological Restoration Project (Phase 4)

Submitted By:

Andrew Grosse- Herpetologist South Carolina Department of Natural Resources, 220 Santee Gun Club Rd., McClellanville, SC 29458

James “Trapper” Fowler – *formerly* Region 4 Heritage Biologist South Carolina Department of Natural Resources, 420 Dirleton Rd., Georgetown, SC 29440

Gary Burger – Statewide Forester South Carolina Department of Natural Resources, 1000 Assembly St., Columbia, SC 29201

Competitive State Wildlife Grants (C-SWG) funds were awarded to six southeastern states within the range of the Gopher Tortoise (*Gopherus polyphemus*)—Alabama, Florida, Georgia, Louisiana, South Carolina, and Mississippi—in order to restore habitat and increase populations of Gopher Tortoise and other longleaf/sandhill wildlife. The conservation and restoration of these habitats has been identified as a critical component of the long-term persistence of the Gopher Tortoise and other associated species. Many of these areas have become degraded due to lack of management practices and become unsuitable for many sandhill and longleaf pine associated species of conservation concern. The goal of this project is to continue work begun in 2008 and 2011 (Sandhills Ecological Restoration Phases 1 & 2) to enhance restoration efforts in these habitats. South Carolina did not participate in the previous phases but joined the project in Phase 3.

Objectives

South Carolina utilized funds to enhance or restore historic and current Gopher Tortoise habitat, with priority being given to large, fire-suppressed tracts in public as well as private ownership. Restoration activities such as hardwood reduction, herbicide application, groundcover restoration, longleaf planting, and controlled burning were used to meet the restoration/enhancement goals. Total acreage and restoration activities performed were based on the current conditions present at the selected locations to reach the desired restoration goals of:

- significantly increasing the quality and quantity of habitat for priority wildlife species in each participating state;
- utilizing prescribed fire to enhance/restore upland longleaf and sandhill habitat;
- enhancing/restoring upland longleaf and sandhill habitat via invasive species removal and/or hardwood removal;

- restoring upland longleaf and sandhill habitat by planting longleaf pine; and
- restoring upland longleaf and sandhill habitat by planting native groundcover.

Accomplishments

During the first year of this grant, we selected Tillman Sand Ridge Heritage Preserve (TSRHP) as the focal area for our restoration activities, after evaluation of numerous properties. The TSRHP is home to the largest protected population of tortoises in South Carolina and represents one of the most robust populations at the northern edge of the species' range. Additionally, TSRHP represents the highest quality habitat in a greater sand ridge complex, mostly in private ownership, and may serve as a refuge for tortoises in the area as land uses and timber management fluctuates. SCDNR conducted a Line Transect Distance Sampling survey of the TSRHP in Fall 2015, and analysis of that data indicated this is a population that meets Minimum Viable Population criteria, and has the highest tortoise density known in South Carolina [N=232 (95%CI: 169-320) and tortoise density of 1.43 tortoise/hectare]. This site represents a stronghold for tortoises in South Carolina, and at the northern edge of the species' range, any activities that may increase the carrying capacity of the site may serve to buffer this species from extirpation. Additionally, providing more high-quality habitat on the greater Tillman Sand Ridge increases the ability for this site to receive tortoises displaced from adjacent lands.

Some portions of the TSRHP have not been subject to the same management practices as the major interior upland portions of the site and have experienced fire suppression. This has led to high basal areas, shading, and habitat that is not utilized by sandhill species although soils are suitable. By focusing restoration activity on these areas of the property, we hope to significantly increase the available habitat within TSRHP. After meeting with Heritage Preserve Managers and the SCDNR Forester, a plan to add additional upland/sandhill habitat to the Preserve through selective cutting and fuel chipping to reduce hardwoods and lower stand basal areas was developed (Figure 1). Areas of suitable soils that had experienced fire suppression were identified for restoration with the goal being to reestablish a longleaf pine sandhill community with a diverse herbaceous native groundcover appropriate for Gopher Tortoises and other sandhill species.

Year 4 (December 1, 2018 – December 31, 2019) Accomplishments

- 305 acres contract burned by the South Carolina Forestry Commission (SCFC) within existing interior Gopher Tortoise habitat May 2019 adjacent to restoration area
- Wiregrass plugs and Longleaf Pine seedlings purchased for Spring 2020 planting
- Xeric Sandhills Seed Mixture purchased for Spring 2020 planting
- Conducted backpack herbicide release of 138.9 acres
- Quarterly photos taken of each reference plot
- Monitored germination of xeric seed mixture in 31 acres planted Longleaf Pine stand
- "Pioneer" tortoises continue to colonize restored habitat

- Burn plans developed for all new restoration areas ahead of dormant season site preburns

Year 5 (January 1, 2020 – December 31, 2020) Accomplishments

- 117.5 acres of restoration habitat burned by SCDNR Staff March 2020
- 94.5 acres of wiregrass plugs planted in restoration areas
- 87.8 acres of longleaf pine seedlings planted in restoration areas
- Quarterly photos taken of each reference plot
- 15 “Pioneer” tortoises observed colonizing restored habitat

Year 6 (January 1, 2021 – December 31, 2021) Accomplishments

- 279 acres contract burned by SCFC within existing interior Gopher Tortoise habitat May 2021 adjacent to restoration area
- Native Wiregrass Seeds purchased for dispersal in restoration areas
- Quarterly photos taken of each reference plot
- 20 “pioneer” tortoises observed colonizing restored habitat
- Six (6) pounds native wiregrass seeds dispersed across restoration areas

See attached photos of reference plots for all Years.

Significant Deviations: None.

Estimated Federal Expenditure: \$30,000

Tillman Sand Ridge HP - Timber Sale 2017

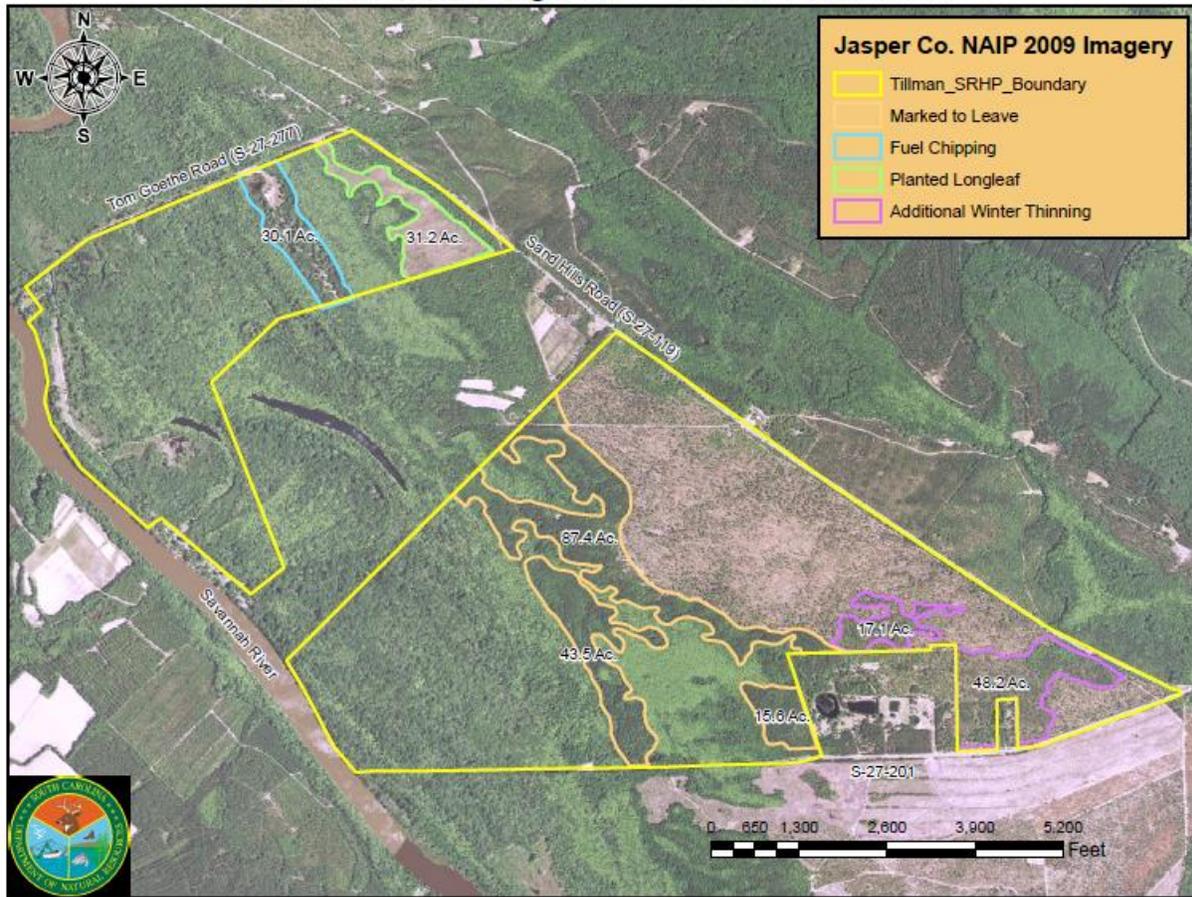


Figure 1: Restoration areas

Tillman Sand Ridge Reference Plot Location Pictures

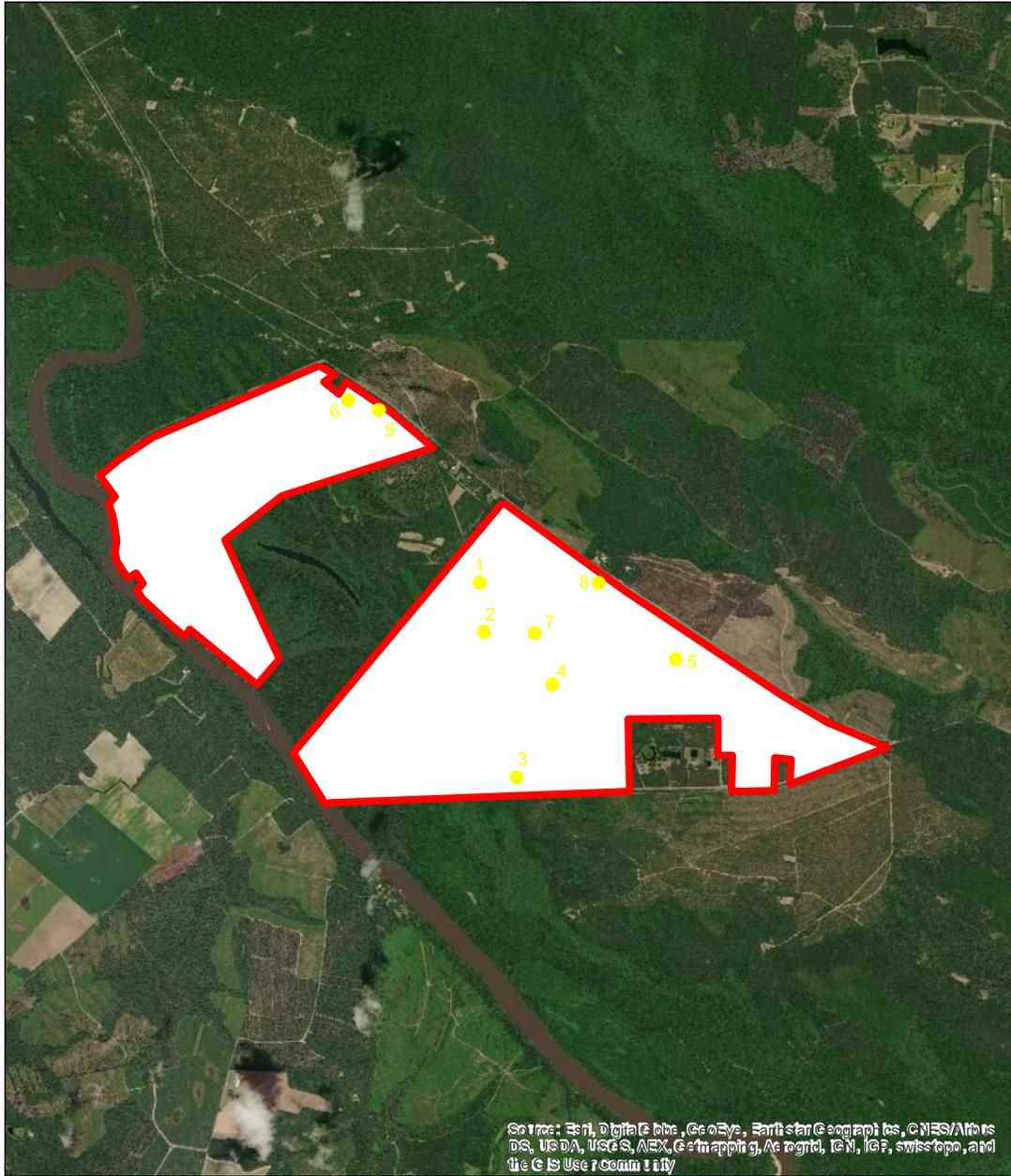


Photo Plots in all Cardinal directions (top photo 2018, bottom photo 2021)

PLOT 1:

Plot 1 East:



Plot 1 South:



Plot 1 West:



Plot 1 North:



PLOT 2:

Plot 2 East:



Plot 2 South:



Plot 2 West:



Plot 2 North:



PLOT 3:

Plot 3 East:



Plot 3 South:



Plot 3 West:



Plot 3 North:



PLOT 4:

Plot 4 East



Plot 4 South



Plot 4 West:



Plot 4 North:



PLOT 5: Reference Condition at TSRHP

Plot 5 East:



Plot 5 South:



Plot 5 West:



Plot 5 North:



PLOT 6 Goethe Planted Longleaf:

Plot 6 East:



Plot 6 South:



Plot 6 West:



Plot 6 North:



2 Additional reference plots added more recently located within interior existing GT habitat representing 1) fire shadow habitat and 2) a wet swale habitat

Plot 7 (Swale):

Plot 7 East:



Plot 7 South:



Plot 7 West:



Plot 7 North:



Plot 8 Fire Shadow:

Plot 8 East:



Plot 8 South:



Plot 8 West:



Plot 8 North:



Goethe Seed Mix Germination Plot 9:

